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May 1, 2008

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Via HAND DELIVERY

The Honorable Anne K Quinlan
Acting Secretary
Surface Transportation Board
395 E Street, N W
Washington, D C 20423

Ex Parte 679

Re: BNSF Railway Company's Comments in Support of Petition of the Association of American Railroads to Institute a Rulemaking Proceeding to Adopt a Replacement Cost Methodology to Determine Railroad Revenue Adequacy

Dear Secretary Quinlan

Enclosed for filing on behalf of BNSF Railway Company ("BNSF") are an original and 15 copies of BNSF's comments in support of a petition to institute a rulemaking proceeding being filed today by the Association of American Railroads These comments are supported by two Verified Statements (1) a Verified Statement of Professor Robert S Hamada and (2) a Verified Statement of John A Hovland In addition to these written materials, we have enclosed 3 CDs containing electronic versions of these documents Please note that the attachments to BNSF's comments contain color pages

Sincerely,

Jill K Mulligan (PM)

Jill K Mulligan

Ex Parte 679

BEFORE THE
SURFACE TRANSPORTATION BOARD

222253

COMMENTS OF BNSF RAILWAY COMPANY IN SUPPORT OF AAR'S PETITION TO INSTITUTE A RULEMAKING PROCEEDING TO CONSIDER ADOPTION OF REPLACEMENT COSTS FOR USE IN REVENUE ADEQUACY DETERMINATIONS

BNSF Railway Company ("BNSF") files these comments in support of the Petition of the Association of American Railroads to Institute a Rulemaking Proceeding to Adopt a Replacement Cost Methodology to Determine Railroad Revenue Adequacy ("Replacement Cost Petition"), which is being filed with the Board today. As a member of AAR, BNSF has actively supported and participated in AAR's development of a proposed methodology to use replacement costs in determining revenue adequacy BNSF fully supports the proposal that AAR presents in its Petition and urges the Board to initiate the rulemaking proceeding requested by AAR

BNSF is filing these comments to present additional information that it believes will be useful to the Board in its consideration of AAR's Petition and in its formulation of a Notice of Proposed Rulemaking to pursue adoption of a replacement cost methodology. This additional information consists of (1) a Verified Statement of Robert S. Hamada, Professor Emeritus of Finance at The University of Chicago Graduate School of Business, which addresses the issue of appropriate financial models for use in determining railroad revenue adequacy, and (2) a Verified Statement of John A Hovland of BNSF, which sets forth a proposed methodology for developing replacement costs for intermodal and automotive facilities This methodology is intended to be incorporated in the broader replacement cost framework proposed by AAR

I. BNSF's Rationale for Presenting Professor Hamada's Statement

Professor Hamada's statement provides the perspective of an expert in finance on the subject of asset valuation for purposes of determining revenue adequacy and on the related subject of the appropriate financial model for determining revenue adequacy. Professor Hamada concludes that using the market-derived cost of capital in conjunction with the book value of assets is incorrect and would result in an incorrect calculation of adequate revenues This testimony corroborates the views of AAR witnesses Kalt and Klick. Noting that it is impractical to estimate the market value of already used railroad assets, Professor Hamada explains that it is appropriate to use replacement costs new to determine revenue adequacy, as is done in stand-alone cost ("SAC") cases using the Board's Discounted Cash Flow ("DCF") model

BNSF believed that it would be instructive to obtain Professor Hamada's opinion as to whether the Board's DCF model used in stand-alone cost cases is an appropriate vehicle for determining revenue adequacy Professor Hamada's conclusion that the Board's DCF model provides an estimate of adequate revenues that is consistent with the two theoretical models presented by Dr. Hamada provides strong support for using the Board's DCF model in revenue adequacy determinations in the manner proposed by AAR

II. BNSF's Rationale for Developing Replacement Costs for Intermodal and Automotive Facilities

The Board's Simplified SAC procedures do not provide replacement cost values or procedures for intermodal and automotive facilities (the bulk of BNSF's account 25 assets) because these facilities have not been involved in the recent Full SAC cases that the SSAC process draws from However, these facilities, particularly intermodal terminals, represent a very important component of railroad capital investment for BNSF and other carriers -- particularly in recent years -- and BNSF expects that such investment will continue at a high level into the future Use of replacement costs for this category of assets is necessary to insure that the Board's annual revenue adequacy determination takes account of BNSF's need to earn an adequate return on these investments Accordingly, BNSF has taken the lead in developing a method for calculating intermodal and automotive facilities costs and has proposed here a bottom-up engineering approach that can be applied to a carrier's existing intermodal and automotive facilities to estimate replacement costs. BNSF hopes that the Board will initiate the proceeding described in the AAR filing, and asks that the Board include its proposed approach in a Notice of Proposed Rulemaking as a basis for developing a method for determining replacement costs for intermodal and automotive facilities

As his verified statement indicates, Mr Hovland developed a simplified method of estimating replacement costs for each type of facility by first identifying the standard components that would be required by that type of facility. He then determined what quantity of each standard component would be required based on a ratio to feet of strip track (for intermodal facilities) or to feet of loading/unloading track (for automotive facilities) Replacement costs for each BNSF intermodal or automotive facility were then calculated based on standardized unit cost assumptions Mr. Hovland's estimate shows that the gross book value reported by BNSF in its 2006 R-1 Annual report substantially understates the likely replacement cost of its intermodal and automotive facilities BNSF believes that it would be appropriate to use Mr Hovland's estimate, instead of gross book value, as an input to the DCF model to be used in AAR's replacement cost approach for purposes of calculating BNSF's revenue requirement

CONCLUSION

BNSF urges the Board to grant the AAR's Replacement Cost Petition and issue a Notice of Proposed Rulemaking proposing use of AAR's replacement cost methodology Further, BNSF requests that the Board include BNSF's proposed approach to developing replacement costs for intermodal and automotive facilities as a component of the proposed replacement cost proposal.

Respectfully submitted,

Richard E. Weicher (by JKM)

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May 1, 2008

HAMADA

VERIFIED STATEMENT OF ROBERT S. HAMADA

I INTRODUCTION AND ASSIGNMENT

1 My name is Robert S Hamada I am the Edward Eagle Brown Distinguished Service Professor Emeritus of Finance and former Dean at The University of Chicago Graduate School of Business ("GSB") I have served as an Instructor, Assistant Professor, Associate Professor, and Professor of Finance at the GSB since 1966 I also have served in other positions at the GSB, including Director of the Center for Research in Security Prices (1980 – 1985), Deputy Dean for the Faculty (1985 – 1990), and Dean (1993 – 2001) While at the GSB, I have taught extensively on the subjects of corporate finance and corporate strategy I have serve(d) on 11 business Boards of Directors and numerous non-profit Boards My curriculum vitae, which also contains a list of my publications, is attached hereto as Exhibit A

2. In a decision issued on January 17, 2008, the Surface Transportation Board ("STB") decided to replace its single-stage Discounted Cash Flow ("DCF") model with a Capital Asset Pricing Model ("CAPM") to estimate the railroad industry's cost of capital [1] In an earlier notice of proposed rulemaking ("NPRM"), dated August 14, 2007, the STB had decided not to reexamine how the cost of capital is applied in the annual estimation of "adequate" revenues [2] The net result of these two decisions is that the STB will apply a CAPM based cost of capital while continuing to use the book value of a railroad company's capital to determine its allowable rate of return, which will, in turn, determine the railroad's "adequate" revenue each year

3 Counsel for the BNSF Railway Company ("BNSF") has asked me to

a comment on the STB's decision to adopt the CAPM while continuing to use the book-value approach,

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[1] I understand that the STB is also considering using both the CAPM and a "multi-stage DCF" model to estimate the cost of equity and averaging the two approaches I have not been asked to opine on this proposal STB Ex Parte No 664 at 12-13

[2] STB Ex Parte No 664 at 1, 5 and 16

b provide a theoretical model and methodology for determining "adequate" revenues that is consistent with the STB's existing revenue adequacy standard. and

c from this theoretical construct. determine a consistent practical method for estimating "adequate" revenues

II TABLE OF CONTENTS AND SUMMARY OF CONCLUSIONS

4 The remainder of this report is organized as follows

a In Section III, the STB's decision to adopt the CAPM while continuing to use the book-value approach will be discussed

b In Section IV, the Standard Economists' One-Period Model to determine "adequate" revenues and its theoretical extension to multiple periods, will be discussed (called "Model One")

c In Section V, a theoretical multi-period NPV-based model to determine "adequate" revenues will be discussed (called "Model Two")

d In Section VI, the SAC model, developed and used by the STB in rate cases, will be discussed—and how it can be modified to estimate "adequate" revenues for entire railroads, instead of for sections of railroads, by utilizing as the investment base, the cost of replacing current assets with new assets (called "Model Three")

e In Section VII, the conclusions will be presented

5 There are three major conclusions which match the three sections of the assignment

a The weighted average cost of capital calculated by the STB is market-based The cost of debt is based on market data and the cost of equity is based on CAPM, which also estimates a market rate of return i e., the return that investors expect to receive on the market value of the investment they made in the company It therefore follows that the market-based cost of capital calculated by the STB must be applied to the market value of the investment

Using the market-derived cost of capital in conjunction with the book value of assets is therefore incorrect and would result in an incorrect number for "adequate" revenues

b Model One and Model Two provide a correct theoretical basis for estimating "adequate" revenues Both of these models require inputs which in a practical sense cannot be estimated, for example, estimates are required for the market value and life of already-used, currently held assets and/or for economic depreciation

One cannot estimate the market value of already-used, currently held assets by assuming it is equal to the observable market value of a company's securities (i e , its debt and equity)

c The "simplified" SAC Model (Model Three), which uses the market value of new assets and the life of these new assets, periodically updated, provides an estimate of "adequate" revenues for the initial period which is consistent with the theoretical models This avoids the extremely difficult, practical problem of estimating the market value and life of already-used, currently held assets and/or economic depreciation

III WHAT THE STB HAS ALREADY DECIDED: "ADEQUATE" REVENUES AND THE USE OF CAPM

6 The STB attempts to ensure that railroads receive "adequate" revenues The STB states that "adequate revenues should cover a railroad's costs plus an adequate rate of return on its investment base "[3] This definition is based on the Interstate Commerce Act which states that "adequate" revenues should "provide a flow of net

[3] 364 I C C 803, 1981 WL 22788 (I C C) at 2

income plus depreciation to support prudent capital outlays, assure the repayment of a reasonable level of debt, permit the raising of needed equity capital, and cover the effects of inflation, and attract and retain capital in amounts adequate to provide a sound transportation system in the United States"[4], no more, no less In other words, revenues are "adequate" if, on an on-going basis, they cover operating expenses and depreciation, and yield a rate of return to investors (equity and debt holders) that equals the rate that investors expect in order to undertake the risk of investing in railroads Ensuring that investors earn a rate of return commensurate with the risks that they bear—by ensuring that railroads receive "adequate" revenues—is necessary to ensure that investors are willing to undertake investments as and when necessary and that current investors do not attempt to reallocate their capital

7 The STB determines revenue "adequacy" annually, and therefore calculates the railroad industry's cost of capital each year The cost of capital is calculated as the weighted average of the cost of equity and the cost of debt The STB will now use the CAPM to determine the cost of equity and will continue to estimate the cost of debt based on market data, specifically the average current bond yield for all publicly traded bonds during the year for the railroad industry [5] The weights used in determining the weighted average cost of capital are calculated using the market values of debt and equity [6]

8 <u>The Capital Asset Pricing Model</u>

As the STB itself has recognized, the CAPM is a "well-known, widely-used, and theoretically sound"[7] model used for estimating the expected rate of return on equity investments CAPM was developed in the mid-1960s by four economists, William Sharpe, John Lintner, Jack Treynor, and Jan Mossin[8] CAPM is based on two fundamental principles of financial economics One principle is that in a competitive

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4 3 I C C 2d 261, 1986 WL 61194 (I C C) at 1

5 Comments of the AAR and its members railroads, Ex Parte No 558 (Sub-No 10), at 5

6 STB Ex Parte No 664 at 3

7 STB Ex Parte No 664 at 2

8 See Brealey and Myers, Edition 5, at 180, and Mossin, J . "Equilibrium in a Capital Asset Market," *Econometrica* 34, No 4 (October 1966), 768-783

capital market, the risk premium for a particular asset is a function of its systematic, or non-diversifiable, risk as measured by its Beta Specifically, an asset's Beta measures the covariance between the market return on the asset and the return on the overall market [9] The second principle is that investors expect higher rates of return from assets with higher risk In other words, when investors anticipate that the cash flows associated with an asset will be riskier, as measured by its Beta, the rate of return that they will demand for this riskier investment will increase linearly to its risk In addition to the Beta risk, according to the CAPM, the investor requires an expected rate of return equal to the risk-free real time value of money and the expected inflation rate over this period

9 CAPM uses market returns to measure expected rates of return, that is, the rate of return equals the sum of dividends plus capital gains divided by the market value of the investor's equity investment in the stock at the start of the period Thus both inputs to the weighted average cost of capital used by the STB—the expected return on equity and the expected return on debt—are market-based and observable In the present context, "adequate" revenues from the railroad must be the basis for providing the equity (or debt) investor his/her "adequate" dividends plus capital gains (or interest payments) on the market value at the start of this period of his/her investment in the equity (or debt) of the railroad

In terms of the application of the rate of return calculated using this model, one must always keep in mind that the model calculates a market-based cost of capital and therefore the appropriate theoretical rate base should be the market value of the current assets (or investments) which is the base for the "adequate" revenues

10 Based on the discussion in paragraphs 8 and 9, it is concluded that the weighted average cost of capital estimated using the CAPM must be applied to the market value of investments at the beginning of the period, [10] as opposed to any other measure of the value of these investments, such as book value

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9 Beta "is the covariance between returns on the risky asset and the market portfolio divided by the variance of the market portfolio " Thomas E Copeland and J Fred Weston, Financial Theory And Corporate Policy, 3d Edition, at 198

10 As discussed later in this report, the market value of the already-used, currently held assets is difficult, if not impossible, to estimate I understand that the AAR has not

IV Model One: Standard Economists' One-Period Model to determine "adequate" revenues and its theoretical extension to multiple periods

11 "Adequate" revenues need to cover i) operating expenses, ii) the costs necessary to maintain the earning capacity of the asset base, and iii) as discussed above, the return investors demand for the use of their capital It is important that "adequate" revenues cover all three of these components Naturally, if the railroad cannot cover its operating expenses over the long-term, it cannot justify staying in business Likewise, as railroad assets wear out, it is important that railroads have the ability to replace these assets so as to maintain the earning capacity of its assets for the subsequent periods The market "value of the capital stock which must be replaced in order to maintain [the value of] an initial investment" is termed economic depreciation [11, 12] Reinvesting an amount equal to economic depreciation would theoretically enable a company to maintain the earning capacity of its already-used, currently held assets Finally, if investors do not receive a return commensurate with the risk they bear for investing in railroad assets (plus the risk free rate—compensating the investor for the real time value of money and the expected inflation), they will not invest, or worse, seek to withdraw their investments from the railroad industry

12 Thus, in a one-period model, "adequate" revenue (R_A) for that period equals simply the sum of operating expenditures (O) over that period, the economic depreciation (ED) incurred over that period, and the expected return to investors which can be calculated as the market value of the already-used, currently held assets (I_C) at the start of the period times the cost of capital (ρ)

$$R_A = O + ED + (\rho \times I_C)$$

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attempted to estimate the market value of currently held assets, nor has it recommended a methodology for doing so

11 "The Estimation of Economic Depreciation Using Vintage Asset Prices", Charles R Hulten and Frank C Wykoff, December 1980 Journal of Econometrics 15 (1981) 367-396 at 370

12 It is important to note that economic depreciation differs from depreciation used by accountants in preparing companies' financial statements Accounting depreciation used in financial reporting is often calculated formulaically with no relationship to the remaining earning capacity of an asset Therefore, accounting depreciation cannot be used as an appropriate proxy for economic depreciation

13 If a railroad company managed to invest an amount equal to the economic depreciation in each period, it will theoretically be able to maintain the earning capacity of its assets into perpetuity Therefore, if one were able to estimate economic depreciation in successive periods, the one-period model could be used in each successive period and be employed as a multi-period model See Exhibit 1 for a depiction of the annual flows through time

Exhibit 1
Model One: Standard Economists' Multi-Period Model

Year	Economic Depreciation	Operating Expense	Return to Investors	"Adequate" Revenue $R_A^t = O^t + ED^t + (\rho^t \times I_C^{t-1})$
0	I_C^0			
1	ED_N^1	O^1	$\rho^1 \times I_C^{\ 0}$	R_A^1
2	ED_N^2	O^2	$\rho^2 \times I_C^{\ 1}$	R_A^2
3	ED_N^3	O^3	$\rho^3 \times I_C^{\ 2}$	R_A^3
4	ED_N^4	O^4	$\rho^4 \times I_C^{\ 3}$	R_A^4
5	ED_N^5	O^5	$\rho^5 \times I_C^{\ 4}$	R_A^5
6	ED_N^6	O^6	$\rho^6 \times I_C^{\ 5}$	R_A^6
7	ED_N^7	O^7	$\rho^7 \times I_C^{\ 6}$	R_A^7
8	ED_N^8	O^8	$\rho^8 \times I_C^{\ 7}$	R_A^8
9	ED_N^9	O^9	$\rho^9 \times I_C^{\ 8}$	R_A^9
10	ED_N^{10}	O^{10}	$\rho^{10} \times I_C^{\ 9}$	R_A^{10}
.		.	⋮	
21	ED_N^{21}	O^{21}	$\rho^{21} \times I_C^{\ 20}$	R_A^{21}
41	ED_N^{41}	O^{41}	$\rho^{41} \times I_C^{\ 40}$	R_A^{41}
	⋮	⋮	⋮	
61	ED_N^{61}	O^{61}	$\rho^{61} \times I_C^{\ 60}$	R_A^{61}
	.	:		.

Definitions I_C^t denotes the market value of already-used, currently held assets in period t, ED^t is economic depreciation in period t, O^t is operating expenses in period t, ρ^t is cost of capital in period t, and R_A^t is "adequate" revenues for period t

Note This model makes no explicit assumptions about the time profile of operating expenses, ρ, economic depreciation, or "adequate" revenues

14 In such a state of the world, a railroad company will "earn" adequate revenues in each period if the revenues equal the sum of operating expenses in each period, economic depreciation in each period and a market rate of return on the market value at the start of each period of investors' investment in the railroad's assets

15 However, this standard economists' one-period or multi-period model would be difficult to use in practice for at least two reasons First, estimating economic depreciation is not trivial Second, estimating the market value of already-used, currently held railroad assets is complicated by the nature of the assets owned by railroads and likely is impossible in a practical sense For example, there is no ready market by which one can observe the market value of already-used, currently held track

16 Note that the theoretical illustration of Model One in Exhibit 1 is completely general and requires no specific assumptions regarding the time profile of operating expenses, economic depreciation, cost of capital, or "adequate" revenues

V Model Two: The Theoretical NPV Model to Estimate "Adequate" Revenues

17 Model One can be shown to be equivalent to the commonly used valuation methodology called the Net Present Value ("NPV") Model or the Discounted Cash Flow ("DCF") Model The NPV Model uses four inputs

- A projection of free cash flows—"free", meaning generated by regular operations and not required for reinvestment—over a projection period (typically five to ten years)
- A way to estimate the value of cash flows beyond the projection period
- A discount rate—equal to the cost of capital, that is the return investors expect for bearing the risk of that particular investment
- The initial investment cost, whether the assets are new or used, and the cost and timing of their periodic replacement

18 The NPV of free cash flows over the life of the investment is determined as the present (i e today's) value of the free cash flows over the projection period and

beyond the projection period, less the amount of initial investment A positive NPV indicates that investors can expect to receive a rate of return that is higher than the cost of capital because the present value of the free cash flow, i e , the return to investors, is higher than the initial investment It follows that a negative NPV indicates investors are expected to receive a rate of return that is less than the cost of capital Finally, an NPV of zero indicates that investors receive a return exactly equal to the weighted average cost of capital

19 This last fact offers a key insight into the calculation of "adequate" revenues The STB attempts to ensure that, on average and over the long-run, investors in railroads receive a rate of return equal to the cost of capital—therefore, the NPV of railroad investments can be expected to equal zero, neither positive nor negative [13]

To illustrate this, consider a \$100 investment in an asset with a useful life of 1 year and an expected rate of return of 10% If this asset returns \$110 to the investor at the end of one year (after paying for operating expenses), the NPV of the investment will be *zero* because the investor will have earned a *return of* his/her initial investment of \$100 plus a *return on* that investment of \$10 which yields a rate of return exactly equal to his/her cost of capital of 10%

Thus, the simplest way to think of the applicability of the theoretical NPV Model (Model Two) in determining "adequate" revenues is to consider a hypothetical scenario wherein a railroad begins operations by investing in brand new assets At the time of purchase, these assets have a discrete market value and lifespan Therefore, in this hypothetical example, the railroad will have to re-invest at the *end* of this lifespan to replace its assets, and will repeat that cycle into perpetuity The amount of reinvestment at a future time will equal the market value of new assets at that time Consequently, in this hypothetical example, each successive investment is an independent "project " If regulators allow the railroad to earn "adequate" revenues over the lifespan of each successive "project," each successive "project" will have an NPV of zero See the illustration below for a depiction of this point

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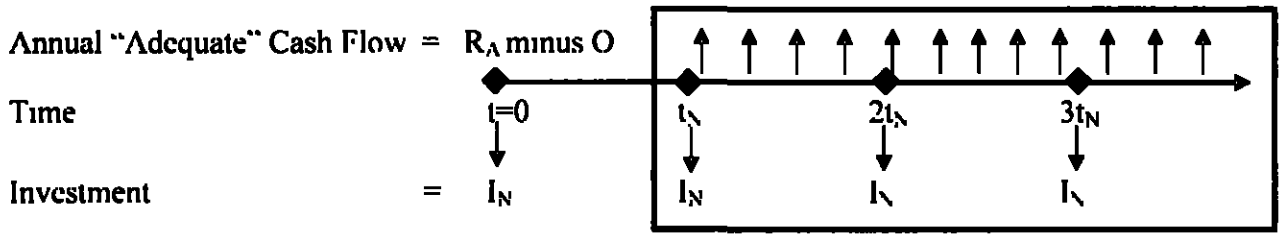
[13] The STB can only attempt to ensure that railroads receive "adequate" revenues *ex ante* (forward-looking), *ex post* revenues (backward looking) may not be what was expected

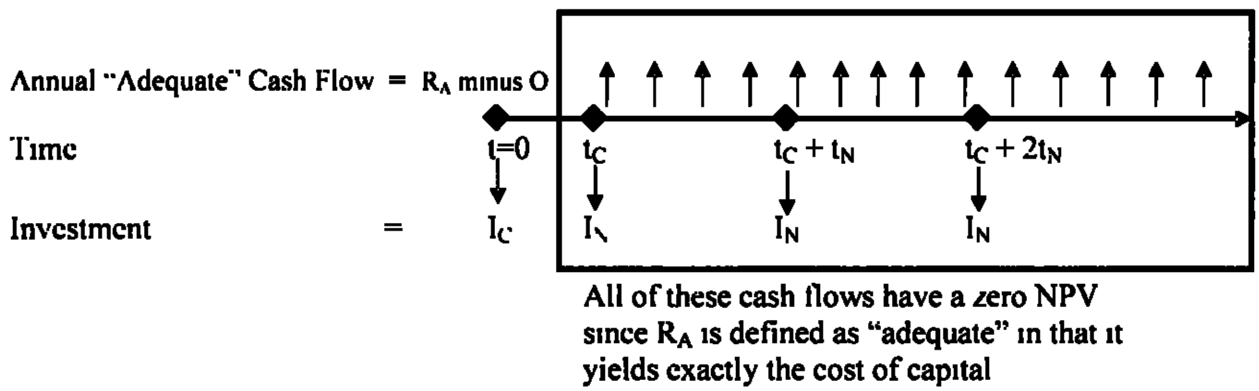


All of these cash flows have a zero NPV since R_A is defined as "adequate" in that it yields exactly the cost of capital

Therefore, in order to calculate the stream of "adequate" revenues, one needs to use an NPV model only for the first investment and to solve for the stream of revenues (R_A) that yields an NPV of zero over the lifespan of those assets, given the initial purchase of new assets (I_N) *and the operating expenses (O) of those assets*

20 A slight modification of this hypothetical scenario makes it possible to reflect the true state of affairs, which is that railroads actually own a mix of assets ranging from brand new to some at the end of their useful lives Assume one knows the market value of these already-used, currently held assets of the railroad (I_C) Further assume that these assets have a discrete remaining life (t_C) [14] In this scenario, the railroad will need to invest in new assets (at a value of I_N) after t_C years and thereafter repeat the cycle into perpetuity every t_N years (i e , the lifespan of brand new assets)

[14] By definition, the market value of currently configured assets will be less than the market value of new assets ($I_C < I_N$)), and the lifespan of current assets will be less than the lifespan of new assets ($t_C < t_N$)



As shown in the illustration above, if regulators allow this railroad to earn "adequate" revenues in the future, each successive investment will be a project with an NPV of zero Therefore, as in the prior example, in order to estimate the stream of "adequate" revenues, one needs to solve for the stream of revenues over the remaining life of current assets that yields a zero NPV for the current investment (I_C) See Exhibit 2 for an illustration of Model Two using the market value and life of already-used, currently held assets

Exhibit 2
Model Two: Theoretical Multi-Period NPV Model

Year	Investment (Instead of ED)	Operating Expenses	Revenue
0	I_C^0		
1	-	O^1	R_A^1
2	-	O^2	R_A^2
3	-	O^3	R_A^3
4	-	O^4	R_A^4
5	-	O^5	R_A^5
6	-	O^6	R_A^6
7	-	O^7	R_A^7
8	-	O^8	R_A^8
9	-	O^9	R_A^9
10	-	O^{10}	R_A^{10}
11	-	O^{11}	R_A^{11}

$PV(\rho^{1\text{-}11}, R_A^{1\text{-}11}) = PV(\rho^{1\text{-}11}, O^{1\text{-}11}) + I_C^0$

	A	+	B	=	C
	I_C^0	+	$PV(\rho^t, O^t)$	=	$PV(\rho^t, R_A^t)$

Solve for the stream of R_A such that A + B equals C

Year	Investment (Instead of ED)	Operating Expenses	Revenue
12	I_N^{12}	O^{12}	R_A^{12}
	-		
32	I_N^{32}	O^{32}	R_A^{32}
	-		
52	I_N^{52}	O^{52}	R_A^{52}
	-		
72	I_N^{72}	O^{72}	R_A^{72}
	-		

If Regulated Rate of Return = ρ^t, Each Successive Investment Has an NPV of Zero

Definitions: I_C^t denotes the market value of already-used, currently held assets in period t, I_N^t denotes the value of new investments in period t, O^t is operating expenses in period t, ρ^t is cost of capital in period t, and R_A is "adequate" revenues for period t

Notes: This model makes no explicit assumptions about the time profile of operating expenses ρ and "adequate" revenues

The already-used currently held assets are assumed to have a life of 11 years

The new replacement assets are assumed to have a life of 20 years

21 Note that the theoretical illustration of Model Two in Exhibit 2 requires no assumptions regarding the time profile of operating expenses, cost of capital, and "adequate" revenues

22 While theoretically sound, Model Two, as is Model One, is difficult to implement because of the difficulty of estimating the market value and remaining life of railroad assets as they are currently configured (of different vintages)

23 One cannot use book values, i e , accounting estimates, as a proxy for market values of already-used, currently held assets because book values are formulaic and do not use any market information on values [15]

24 Likewise, one cannot use the sum of the observed market values of a company's debt and equity as an estimate of the market value of the already-used, currently held assets According to Modigliani and Miller, the sum of the observed market values of a company's debt and equity is equal to the present value of future cash flows from the firm's already-used, currently held assets plus the value of growth opportunities not yet undertaken [16]

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[15] Book values of assets are accounting estimates of the remaining amount of historical investments Because accounting depreciation bears little relation to economic depreciation, the resulting book value is not applicable for use in this context and is not an appropriate proxy for the market value of investments For example, Brealey & Myers note that "If book depreciation and economic depreciation are different (they are rarely the same), then the book profitability measures will be wrong, i e , they will not measure true profitability " Principles of Corporate Finance, 5th Edition at 307 See also Hulten & Wykoff, "Issues in the Measurement of Economic Depreciation – Introductory Remarks", Economic Inquiry vol XXXIV, January 1996 at 11.

[16] The value of a company could also, possibly, include a corporate income tax subsidy for debt financing The source for paragraph 24 is the set of classic Modigliani & Miller original articles
Franco Modigliani & Merton H Miller, "The Cost of Capital, Corporation Finance and the Theory of Investment", *The American Economic Review*, vol 48, June 1958, 261-297, Merton H Miller & Franco Modigliani, "Dividend Policy, Growth, and the Valuation of Shares", *Journal of Business*, University of Chicago Press, vol 34, No 4, October 1961, 411-433, Merton H Miller & Franco Modigliani, "Some Estimates of the Cost of Capital to the Electric Utility Industry, 1954-57", *The American Economic Review*, vol 56, No 3, June 1966, 333-391, and Merton H Miller, "Debt and Taxes", *The Journal of Finance*, vol 32, No 2, May 1977, 261-275

25 In this context, if regulators allow railroads to earn "adequate" revenues—no more, no less—then the Net Present Value of future investments will equal zero, implying that the current value of growth opportunities not yet undertaken is zero Therefore, if revenues earned equal "adequate" revenues, the market value of the company's securities will equal the present value of free cash flows over the remaining life of already-used, currently held assets—that is the current market value of already-used, currently held assets

26 This relationship holds if, and only if, railroad investments earn exactly "adequate" revenues in the current and every future period If, however, one does not know whether or not expected revenues equal "adequate" revenues, one cannot assume that the market value of the company's securities equals the market value of already-used, currently held assets The current value of growth opportunities not yet undertaken, could then be positive or negative Thus one cannot use the observed market value of a railroad's securities today to equal the market value of its already-used, currently held assets [17]

VI Model Three: The "Simplified" SAC Method

27 I understand the STB has developed and used the SAC method to calculate "adequate" revenues in rate disputes between railroads and customers I understand that these rate disputes affect a portion of a railroad's network, and not the entire railroad The SAC method sets rates based on the estimate of the "adequate" revenues for the portion of the network at issue

28 The methodology resembles the NPV model described earlier, in that, it solves for a stream of revenues over the life of the assets Instead of estimating the value and life of current assets used in the portion of the network at issue, the SAC method constructs a hypothetical brand new and efficient route for the portion of the network at issue Essentially, the SAC method estimates "adequate" revenues related to the

[17] Also note that to the extent a railroad company owns non-railroad assets, the market value of a railroad company's securities will not equal the market value of its railroad assets

hypothetical incremental investment necessary to rebuild the portion of the network at issue The method then solves for a stream of "adequate" revenues based on the cost of these hypothetical new assets and associated hypothetical operating expenses

29 I understand that the STB has also used a "simplified" SAC method in some rate filings where one assumes the existing route network is efficient and calculates "adequate" revenues based on an estimate of the market value of new assets (or investments)

30 In theory, a similar approach can be implemented to estimate a stream of "adequate" revenues for the entire railroad In fact, I understand such an approach has been suggested wherein the "simplified" SAC Model will be applied to the full railroad network as distinct from subsets or portions of the network In this approach, one assumes that the entire railroad asset base of a railroad company is replaced by "new" assets (akin to building an incremental hypothetical railroad in rate cases), this method uses the value of new assets of the entire railroad (I_N) as the initial investment—I will hereafter call this the "simplified" SAC Model

31 For any given railroad, there is information available about the time profile of periodic investments that will allow the railroad to continue providing "a sound transportation system"[18] In this version of the "simplified" SAC Model, it is reasonable to assume that the time profile of "adequate" operating earnings is a function of the time profile of these investments As an illustration of a specific time profile of "adequate" operating earnings, see Exhibit 3 "Adequate" revenues would then be "adequate" operating earnings plus operating expenses in the initial period

32 This "simplified" SAC Model assumes that assets are replaced when they fully wear out at the end of their useful life In essence, this "simplified" SAC Model assumes a "one horse-shay" assumption for depreciation—that the assets are equally productive over their useful life and hence do not lose any productive capacity (i e , do not depreciate) over their useful life [19]

[18] 3 I C C 2d 261, 1986 WL 61194 (I C C) at 1

[19] This depreciation model is also sometimes termed the "light bulb" model of depreciation—as with a light bulb, the earnings of the asset remain constant over the

Exhibit 3
Model Three: "Simplified" SAC Model

Year	Investment (Instead of ED)		Operating Earnings (OE_A^t)	
0	I_N^0			
1	-		$OE_A^1 = R_A^1 - O^1$	
2	-		$OE_A^2 = R_A^2 - O^2$	
3	-		$OE_A^3 = R_A^3 - O^3$	
4	-		$OE_A^4 = R_A^4 - O^4$	
5	-		$OE_A^5 = R_A^5 - O^5$	
6	-		$OE_A^6 = R_A^6 - O^6$	$PV(\rho^{1-20}, OE_A^{1-20}) = I_N^0$
7	-		$OE_A^7 = R_A^7 - O^7$	
8	-		$OE_A^8 = R_A^8 - O^8$	
9	-		$OE_A^9 = R_A^9 - O^9$	
10	-		$OE_A^{10} = R_A^{10} - O^{10}$	
20	-		$OE_A^{20} = R_A^{20} - O^{20}$	
	A	=	B	Solve for OE_A^1 such that A equals B, then solve for R_A^1
	I_N^0	=	$PV(\rho^t, OE_A^t)$	
21	I_N^{21}		OE_A^{21}	
	-			If Regulated Rate of Return = ρ^t,
41	I_N^{41}		OE_A^{41}	Each Successive Investment
	-			Has an NPV of Zero
61	I_N^{61}		OE_A^{61}	
	-			

Definitions: I_N^t denotes the value of new investments in period t, O^t is operating expenses in period t, ρ^t is cost of capital in period t, and OE_A^t is "adequate" operating earnings for period t, R_A^t is the "adequate" revenues for period t

Notes: Assets are assumed to have a life of 20 years
This illustration makes the following time profile assumption
$OE_A^t = OE_A^{t-1} \times (1 + i)$, where i is the annual inflation rate for OE_A^t

---

life of the asset, and then suddenly drop to zero at the end of its useful life

33 The "simplified" SAC Model is similar to Model One with two key differences First, as discussed above, unlike Model One which uses annual economic depreciation, this "simplified" SAC Method assumes a "one-horse shay" depreciation profile

The second difference is that Model One uses the current market value of the currently configured assets to estimate the rate of return to investors, whereas the "simplified" SAC Model uses the cost of brand new assets

34 However, if we assume the same specific time profiles of operating expenses and "adequate" revenues as in Exhibit 3, as long as the present value of the annual economic depreciation in Model One equals the present value of future investments (I_N) in the "simplified" SAC Model, Model One and Model Three will yield the same answer for annual "adequate" revenues Compare Exhibits 1 and 3

35 Likewise, the "simplified" SAC Model is similar to Model Two As discussed earlier, Model Two uses the market value and life of already-used, currently held assets The "simplified" SAC Model uses the market value of new assets, which will be higher than the market value of already-used, currently held assets However, the life of new assets will be longer than the life of already-used, currently held assets Therefore, if we assume the same specific time profiles of "adequate" operating earnings as in Exhibit 3, Model Two and Model Three will yield the same answer for the stream of "adequate" revenues

36 If employed, the "simplified" SAC Model will need to be updated periodically to account for changing conditions Updating allows the model to incorporate changes in conditions which alter the required assumptions, such as

- Expectations of inflation
- Cost and lives of railroad assets
- Changes in the weighted average cost of capital, because of changes in the expected rates of return on the company's equity and debt securities, and/or changes in the relative weights

37 Periodic updating of the "simplified" SAC Model also minimizes the impact of the "one-horse shay" depreciation assumption by incorporating changes in underlying conditions and investment cost each year, as opposed to being stuck with the original assumptions for the entire life of the new assets

38 It is therefore concluded that the use of the "simplified" SAC Model with periodic updating provides an estimate of the stream of "adequate" revenues that is consistent with the two theoretical models discussed as benchmarks

VII Conclusions

39 To repeat, my conclusions are as follows

a The weighted average cost of capital calculated by the STB is market-based The cost of debt is based on market data and the cost of equity is based on CAPM, which also estimates a market rate of return i e , the return that investors expect to receive on the market value of the investment they made in the company It therefore follows that the market-based cost of capital calculated by the STB must be applied to the market value of the investment

Using the market-derived cost of capital in conjunction with the book value of assets is therefore incorrect and would result in an incorrect number for "adequate" revenues

b Model One and Model Two provide a correct theoretical basis for estimating "adequate" revenues Both of these models require inputs which in a practical sense cannot be estimated, for example, estimates are required for the market value and life of already-used, currently held assets and/or for economic depreciation

One cannot estimate the market value of already-used, currently held assets by assuming it is equal to the observable market value of a company's securities (i e , its debt and equity)

c. The "simplified" SAC Model (Model Three), which uses the <u>market value</u> of new assets and the life of these new assets, periodically updated, provides an estimate of "adequate" revenues for the initial period which is consistent with the theoretical models. This avoids the extremely difficult, practical problem of estimating the market value and life of already-used, currently held assets and/or economic depreciation

I, Robert S Hamada, declare under penalty of perjury that the foregoing is true and correct Further, I certify that I am qualified and authorized to file this statement

Executed on April 29, 2008

Robert S. Hamada

Robert S Hamada

EXHIBIT A

Spring, 2008

VITA

ROBERT S. HAMADA

Birthdate: August 17, 1937	Birthplace. San Francisco, California

Office Address
Graduate School of Business
University of Chicago
1101 East 58th Street
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773-834-1369 (phone)
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Home Address.
50 East Bellevue Place, # 2305
Chicago, Illinois 60611

Wife: Danielle
Children: Matthew (born. 1967)
Janet (born 1968)

Education

1963-1966 — *Massachusetts Institute of Technology* Ph D in Finance (completed in 1969) at the Sloan School of Management Concentration in Business and Public Finance, Economics Thesis: "Portfolio Analysis and Corporation Finance " Other major areas of investigation. The Empirical Incidence of the Corporation Income Tax in a Neoclassical Growth Economy .

1959-1961 — *Massachusetts Institute of Technology* S.M (completed in 1961) at the Sloan School of Management. Thesis "An Analysis of Diffusion Indexes of Insiders' Transactions "

1955-1959 — *Yale University* B E in Chemical Engineering (completed in 1959)

Employment

8/2003-present	Edward Eagle Brown Distinguished Service Professor Emeritus of Finance, Graduate School of Business, University of Chicago
1993-7/2003	Edward Eagle Brown Distinguished Service Professor of Finance, Graduate School of Business, University of Chicago
7/2001 – 9/2002	Chief Executive Officer, Merchants' Exchange LLC, Chicago, Illinois
1993-2001	Dean, Graduate School of Business, University of Chicago
1993	Director, Center for International Business Education and Research, Graduate School of Business, University of Chicago
1989-1993	Edward Eagle Brown Professor of Finance, Graduate School of Business, University of Chicago
1985-1990	Deputy Dean for the Faculty, Graduate School of Business, University of Chicago

1980-1985	Director, Center for Research in Security Prices, Graduate School of Business, University of Chicago
1966-1989	Instructor, Assistant Professor, Associate Professor, and Professor of Finance, Graduate School of Business, University of Chicago
1979-1980	Baring Brothers Visiting Professor of Finance (September through August), London Graduate School of Business Studies, London, England
1976	Leslie Wong Distinguished Faculty Summer Research Fellow, University of British Columbia, Vancouver, Canada
1973	Visiting Senior Lecturer in Finance (January through June), London Graduate School of Business Studies, London, England
1971-1972	Visiting Associate Professor of Finance (September through June), University of Washington, Seattle, Washington
1971	Visiting Associate Professor of Finance (July through August), University of California at Los Angeles
1961-1963	Economic and Financial Analyst, Sun Oil Company, Philadelphia, Pennsylvania. Assignments included acquisition and disposition studies, capital budgeting, mathematical programming, and exponential smoothing models

Teaching, Research, Administrative, and Consulting Interests

Teaching areas included Corporation Finance, Business Policy and Strategy, Portfolio and Security Analyses, Capital Markets, Applications of Financial Theory, Public Finance, Financing of Nonprofit Organizations, and Small Business Problems Received the first "Outstanding Teacher Award" (1970) and the McKinsey Award for Excellence in Teaching (1981), Graduate School of Business, University of Chicago; *Fortune* Magazine's 8 Outstanding U S Business School Professors (January 1982).

Research interests in effects of risk and taxes on the financing and capital budgeting decisions within the firm, on portfolio selection, and on the pricing of multiperiod capital assets, interface between finance, corporate strategy, and international business Listed in Blaug, M. *Who's Who in Economics A Biographical Dictionary of Major Economists 1700-1981*, MIT Press, 1982, 1986

Administrative duties included Dean, Graduate School of Business, University of Chicago (1993-2001), Director, Center for International Business Education and Research (1993), Deputy Dean, Graduate School of Business, University of Chicago (1985-1990), Director of Center for Research in Security Prices (1980-1985), finance faculty coordinator for Graduate School of Business, University of Chicago (1975-1985) Committee work included· Chair, University Committee on Retirement (1993-1999), Standing Committee on Retirement Issues (1993-1999), ARCH Development Corporation (1993-2000); Center for Health Administration Studies (CHAS) Oversight Committee (1993-1995), Chairman, Task Force on Faculty Retirement (1991-1992).

Consulting activities included associate editor, *Journal of Finance* (1974-1977; 1981-1983), associate editor, *Journal of Financial and Quantitative Analysis* (1970-1983); referee for 16 journals, consulting editor in finance, Scott Foresman & Co ; advisory board, *Journal of Applied Corporate Finance*, State of Illinois (framing and implementing the Illinois state income tax); City of Chicago Economic Development Commission, Brown Brothers Harriman and Company, Harris Trust and Savings Bank, Continental Illinois Bank, First Chicago, Booz Allen, Touche Ross, FMC Corporation, Bradford National Corporation, UOP Inc , Timken; and other firms Expert witness for Mayer, Brown and Platt; Kirkland and Ellis; Jenner & Block; White and Case; Arnold & Porter; Winston & Strawn, etc., speaker at innumerable conferences and universities.

Member of the Board of Directors (or Trustees) Federal Signal Corporation (10/2003-present), Fleming (2001-2004), Merchants' Exchange LLC (7/2001-9/2002), National Bureau of Economic Research (NBER) (1983-present), A M Castle & Co (1984-present), Northern Trust Corporation (1988-2005), Chicago Board of Trade (public director, 1989-1992, 1993-1996, 1997-2000), Flying Food Group, Inc (1992-present), WTTW Channel 11 (1996-present); Mayor Daley's Northerly Island Park Planning Committee (1996-1998); Riverwood International Corporation (1992-1993), the reorganized Manville Corporation (1988-1993), INFORMS (TIMS) (1986-1999), Teachers Insurance and Annuity Association (TIAA) (1984-1988), Van Straaten Chemical Company (1982-acquired in 1987); elected member of the Board of Directors, The American Finance Association (1982-1985); University of Chicago Laboratory Schools (1984-1991), Hyde Park Neighborhood Club (1970-present)

Member of the Advisory Committee (Board) of founding member of the Advisory Board of the College of Management of National Taiwan University (1998-2000), the *Encyclopedia of American Business* advisory committee (1997-present), EVA® Institute

Member of the Investments (or Finance) Committee of the Board of INFORMS (TIMS) (1995-1999), National Bureau of Economic Research (1985-1995), American Economic Association (1988-1990, 1991-1993, 1997-1999)

Member of American Economic Association, American Finance Association, Econometric Society; The Bond Club of Chicago, Chicago Committee of The Chicago Council of Foreign Relations, Commercial Club of Chicago, The Economic Club of Chicago, The Executives' Club of Chicago, Risk Management Center of Chicago

Listed in Marquis' *Who's Who in America, Who's Who in the World, Who's Who in Finance and Industry, Who's Who in the Midwest, Who's Who in Science and Engineering, Who's Who in American Education*

<u>Publications and Working Papers</u>

"Portfolio Analysis, Market Equilibrium and Corporation Finance," *Journal of Finance*, March, 1969, reprinted in: Stephen Archer and Charles A. D'Ambrosio (editors), *The Theory of Business Finance A Book of Readings*, Macmillan Publishing Co , 1976

"The Effects of Leverage and Corporate Taxes on the Shareholders of Regulated Utilities " In Trebing and Howard (editors), *Rate of Return under Regulation New Directions and Perspectives*, Michigan State University, 1969

"Investment Decision with a General Equilibrium Mean-Variance Approach," *Quarterly Journal of Economics*, November 1971.

"The Effect of the Firm's Capital Structure on the Systematic Risk of Common Stocks," *Journal of Finance*, May 1972, reprinted in. James L Bicksler (editor), *Capital Market Equilibrium and Efficiency, Implications for Accounting, Financial and Portfolio Decision-Making*, D C Heath and Company,

1975; and reprinted in Stewart C Myers (editor), *Modern Development in Financial Management*, the Dryden Press, 1976.

"Calculation of Present Value. The Multiperiod Case with Explicit Adjustment for Risk," *Proceedings of the Seminar on the Analysis of Security Prices*, November 1975.

"Super Premium Security Prices and Optimal Corporate Financing Decision· Discussion," *Journal of Finance*, May 1976

"Corporate Finance and the Capital Asset Pricing Model Discussion," *Journal of Finance*, May 1977

"Financial Theory and Taxation in an Inflationary World· Some Public Policy Issues," *Journal of Finance*, May 1979

"Taxes and Corporate Financial Management," (with Myron Scholes), in Altman, E. and Subrahmanyan, M , (editors), *Recent Advances in Corporate Finance*, Irwin Press, 1985

"Differential Taxes and the Structure of Equilibrium Rates of Return Managerial Implications and Remaining Conundrums," in *Advances in Financial Planning and Forecasting*, Vol II, 1986

"Making Statistics More Effective in Schools of Business· Interdisciplinary Cooperation," (with James M. Patell, Richard Staelin, and William E. Wecker). *Proceedings of the Business and Economics Statistics Section--American Statistical Association*, 1986.

"Problems and Opportunities for Statistics in Accounting, Marketing, Finance, and Production," (with James M Patell, Richard Staelin, and William E Wecker), *Journal of Business and Economic Statistics*, 1987

HOVLAND

VERIFIED STATEMENT OF
JOHN A. HOVLAND

My name is John A Hovland My business address is 2650 Lou Menk Drive, Fort Worth, Texas 76131 I am currently Director, Marketing Facility Development, for BNSF Railway Company ("BNSF"), a position I have held since July 1, 2001 I have been with the company for over 35 years Prior to my current position, I have held various positions in the engineering department, the most recent of which was Division Engineer responsible for track maintenance and construction for 5 years My current responsibilities at BNSF include oversight of all functions related to the construction and maintenance of intermodal, automotive and transload facilities These functions include planning, design, engineering, construction management and costing

I was asked to develop a simplified method for estimating replacement costs of BNSF's intermodal facilities and automotive facilities.[1] The approach described below is based on my experience with these types of facilities

Intermodal Facilities

Attachment A to this statement contains a schematic of the standard components present in an intermodal facility The schematic depicts two distinct areas of the facility (1) the strip track area where the loading and unloading of containers to and from trains is accomplished; and (2) the parking area where chassis and containers are stored or held awaiting pickup The standard components for which I developed replacement costs are. the concrete crane pad, the under-crane driveway paving, other driveway paving (separately for the strip track and parking areas), the aggregate base (separately for the strip track and parking areas), subbase (separately

[1] Both of these assets types are reported under account 25 – "TOFC/COFC Terminals" – in the R-1 Annual Report

for the strip track and parking areas), security fencing, gates, yard electrical, and overhead cranes.

The capacity and size of an intermodal facility is generally determined by the quantity of strip track Therefore, for purposes of developing an estimated replacement cost for each intermodal facility, I determined an appropriate ratio for the quantity of each individual component per foot of strip track. For example, I determined that 2 22 square yards of concrete crane pad are required for each foot of strip track The ratios for each component in the intermodal facility are shown in Attachment A In all cases these ratios are based on general rules of thumb that I use when designing intermodal facilities Using these ratios and the feet of strip track allowed me to calculate the replacement quantities of the various standard components required for each of BNSF's intermodal facilities

In order to develop a replacement cost for each facility, it was necessary to apply an appropriate unit cost to the quantity of each standard component. For most standard components, I used RS Means cost data as the unit cost Attachment B shows my development of RS Means costs for both intermodal and automotive facilities. I was not able to use RS Means cost data as the source for gates, electrical equipment (excluding electrical equipment for buildings and facilities), or overhead cranes For gates and electrical equipment, I estimated an appropriate unit cost tied to a ratio of feet of strip track. These unit costs are based on my recent experience with intermodal facilities constructed by BNSF. Based on a current price obtained from the manufacturer, Mi-Jack, the current cost for a standard overhead crane is approximately $1 1 million To place this figure on a consistent basis with my other unit costs, which are all 2006 costs, I estimated that the 2006 cost of a standard crane would have been about $1 million and used that figure in my calculations

I understand that while intermodal terminals as a whole are not reflected in replacement costs developed using the simplified stand-alone cost ("SSAC") procedures specified by the Surface Transportation Board ("Board"), replacement costs of some intermodal terminal components such as track would be generated by a SSAC replacement cost calculation To avoid any double counting of replacement costs I have excluded the following from my calculations buildings and associated parking, signals and communications, security, derails, turnouts, rails, ties, ballast, and grading associated with rails, ties and ballast Engineering, mobilization, and contingencies were calculated using the standard percentages that I understand that the Board has accepted in previous rate cases Engineering and contingencies were not applied to the cost of cranes Attachment C to this statement shows my calculation of replacement costs for BNSF's existing intermodal facilities.

Automotive Facilities

My approach for estimating replacement costs for automotive facilities is similar to that described above for intermodal facilities In the case of automotive facilities, I identified the following standard components asphalt pavement, asphalt driveways, vehicle parking, grading associated with non-track areas, security fencing, haul-away truck parking, gates, electrical, and Buck ramps (mobilized ramps used to load and unload automobiles from rail cars)

The capacity and size of automotive facilities is generally determined by the feet of unloading track. I therefore used unloading track for automotive facilities in the same manner as I used strip track for intermodal facilities, quantities of the various standard components were determined based on a ratio per foot of unloading track The ratios used for each standard component are shown in Attachment D Again, the ratios I used were developed based on my experience with facilities of this type constructed by BNSF Using these ratios and the feet of unloading track allowed me to calculate the quantities of the various standard components required for each of BNSF's automotive facilities.

Unit costs for automotive facilities, like those for intermodal facilities, were derived from RS Means data Because unit costs for gates, electrical equipment, and Buck ramps could not readily be determined from RS Means data, I developed my own estimate of replacement costs per foot of unloading track for these two components, based on my experience

To avoid double-counting replacement costs, I excluded replacement cost components that would likely be covered by the SSAC replacement cost calculations Excluded items included buildings and associated parking, signals and communications, security, derails, turnouts, rails, ties, ballast, and grading associated with rails, ties, and ballast As with intermodal facilities, engineering, mobilization, and contingencies were calculated using standard Board percentages The percentages were not applied to the cost of Buck ramps Attachment E to this statement shows my estimate of replacement costs for each automotive facility

Summary Results

The combined estimated replacement cost for BNSF intermodal and automotive facilities is $2,719,395,627. This is significantly higher than the gross book value of $854,226,000 reported for account 25 for 2006.[2] The disparity between these figures shows that using gross book as the replacement value for intermodal and automotive facilities would clearly understate the actual replacement costs for these asset categories.

[2] This gross book value for account 25 ($854,226,000) is taken from BNSF's R-1 Annual Report for 2007, which contained a corrected and restated 2006 gross book value for account 25 Account 25 includes transload facilities in addition to intermodal and automotive facilities I did not attempt to develop a replacement cost methodology for transload facilities because they represent a very small fraction of BNSF's asset base

I, John A Hovland, declare under penalty of perjury that the foregoing is true and correct

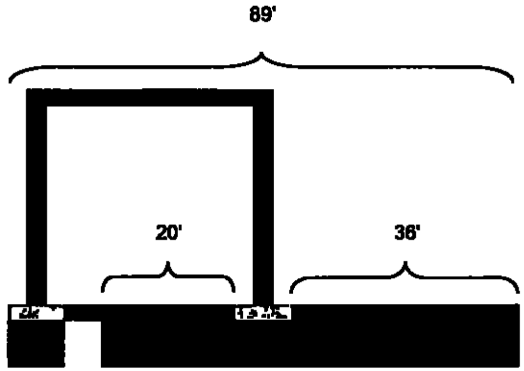
Further, I certify that I am qualified and authorized to file this pleading.

Executed on April 29, 2008

John A Hovland

A

Strip Track Area
Typical Section



1 Overhead RTG Crane
2 Concrete Crane Pad 10 x 16"
3a Undercrane Driveway Paving 13 Asphalt
3b Driveway Paving 13 Asphalt
4 Strip Track
5 12" aggregate base
6 24" Subbase

Calculations

2 Concrete Crand Pad 10'x 16"
10' x 2 000' long x 2 pads = 40 000 sq ft
40 000 sq ft /9sq ft per sq yard = 4 444 sq yds
4 444 sq yds /2 000 feet ~2 22 sq yds Concrete pad per 1 foot of track

3a Undercrane Driveway Paving 13" Asphalt
20' wide driveway x 2 000 feet = 40,000 sq ft
40 000 sq ft / 9 sq ft per sq yd = 4 444 sq yds
4 444 sq yds / 2000 feet = 2 22 sq yds pavement per 1 foot of track

3b Driveway Paving 13" Asphalt
36 wide driveway x 2 000 feet = 72 000 sq ft
72 000 sq ft / 9 sq ft per sq yd = 8 000 sq yds
8 000 sq yds / 2000 foot = 4sq yds pavement per 1 foot of track

5 12 aggregate base
Used under all non track areas of the yard
Calculation is total square yards of Concrete Crane Pad + Undercrane driveway + Driveway Paving + Parking Paving + Chassis Parking Paving = Total square yards

6 24" Subbase
Used under all non-track areas of the yard
Calculation is total square yards of Concrete Crane Pad + Undercrane driveway + Driveway Paving + Parking Paving + Chassis Parking Paving = Total square yards

Subballast and base material under track not included in calculations for grading as they are already included in another schedule

Parking Area/Chassis Parking
Typical Section

1 Paving 10" Asphalt
2 12" aggregate base
3 24" Subbase

Calculations
Parking Requirement per 2 000 feet of strip track
60,000 lifts equals 60 000 containers/trailers requiring parking
Dwell relates to the amount of time that a container/trailer occupies a parking spot Expressed on a facility average in hours Also includes a peaking factor for to reflect weekends and holidays
365 days per year = 8760 hours per year

Parking spots required = (60 000 lifts x (48 hours well x 1 25 peaking factor)/8760 = 410 spaces
410 spaces / 40 spots per acre = 10 27 acres
10 27 acres x 4840 sq = 50220 3 sq yds
50270 3 sq yds Parking/2000' ~25 11 sq yds parking per foot of strip track

There are typically 1 6 chassis on the facility for every container
Assume that every container in a parking spot is on a chassis then parking is required for the balance or 60% of the number of containers

There are three methods of handling chassis
1 Park them conventionally in parking spaces (40 per acre)
2 Stack them on top each other in parking spaces (160 per acre)
3 Place them vertically in racks (180 per acre)

For this model will calculate based on number 1 which would require parking space for the 60% not under containers

Parking spots required for containers/trailers per 2 000 feet = 410
410 spaces x 60 = 246 spaces required for empty chassis
246 spaces / 40 spaces to the acre =6 15 acres
6 15 acres x 4840 sq yds per acre = 29 766 sq yds
29 766 sq yds./ 2,000 ~ 14 88 sq yds per 1 foot of strip track

The units for Concrete Crane Pads Under Crane Driveway paving Driveway Paving and Parking Paving are all stand alone unit cost items in the model due to the difference of unit costs

The units for 12" aggregate base and 24" subbase will all be included as the grading component that is calculated against the non track area of the facility

Recent construction and technology bid for facility In/Out gate was $8 000 000 Facility has 48 000 feet of track per track foot of cost of gate = $170

Recent construction and technology bid for facility site electrical not related to buildings was $8 000 000 Facility has 48 000 feet of track, per track foot of cost of electrical = $170

1 standard 40 foot overhead gantry crane was assumed for each 2 000 feet of track which equals 0 0005 crane per foot of track

Intermodal Facility Asset Replacement Assumptions[1]

Cost per 2,000 TF of Strip Track[2]			Cost per 1 TF of Strip Track	
Input				
Strip Track TF	2,000		1	
Strip Track Miles	0 38			
Output				
Concrete Crane Pad Required (SQ YD)	4,444		2 22	
Cost per SQ YD Crane Pad	$54 00		$54 00	
Crane Pad Cost		$ 239,976		$ 120
Asphalt Pavement Under Cranes (SQ YD)	4,444		2 22	
Cost per SQ YD Asphalt Pavement	$36 35		$36 35	
Asphalt Pavement Cost Under Cranes		$ 161,539		$ 81
Asphalt Driveway (SQ YD)	8,000		4 00	
Cost per SQ YD Asphalt Pavement	$36 35		$36 35	
Asphalt Pavement Cost for Driveway		$ 290,800		$ 145
Parking Required (SQ YD)	50,220		25 11	
Cost per SQ YD Parking	$27 70		$27 70	
Parking Cost		$ 1,391,094		$ 696
Chassis Parking / Stacking / Racking (SQ YD)	29,766		14 88	
Cost per SQ YD Chassis	$27 70		$27 70	
Chassis Parking/Stacking/Racking Cost		$ 824,518		$ 412
Grading Required (SQ YD)	96,874		48 44	
Cost per SQ YD Grading	$40 95		$40 95	
Grading Cost		$ 3,966,990		$ 1,983
8' Fencing Required (Feet)	3,771		1 89	
Cost per Foot of 8' Fencing	$40 50		$40 50	
Fencing Cost		$ 152,733		$ 76
Gate Required ($170 / Strip Track TF)	$170 00		$170 00	
Gate Cost		$ 340,000		$ 170
Electrical Required ($170 / Strip Track TF)	$170 00		$170 00	
Electrical Cost		$ 340,000		$ 170
Overhead RTG Cranes Required	1 0		0 0005	
Cost per Crane	$1,000,000		$1,000,000	
RTG Crane Cost		$ 1,000,000		$ 500
Subtotal Cost per TF of Strip Track		$ 8,707,651		$ 4,354
Engineering Design / Construction Mgmt[3]	10%	$ 770,765		$ 385
Regional Cost Adjustment[3]	0%	$ -		$ -
Mobilization / Performance Bond	3 5%	$ 304,768		$ 152
Contingencies[4]	10%	$ 878,318		$ 439
Total Facility Replacement Cost		$ 10,661,502		$ 5,331

[1] Excludes costs associated with Rail, ties, ballast, buildings, signal, telecom and security that are contained in separate schedules Also excludes grading cost associated with the rail, ties and ballast

[2] 2,000 feet is the base unit of strip track length for the hypothetical facility model because 1 crane is required for every 2,000 feet of strip track Replacement cost values for actual facilities are calculated as a function of actual strip track length

[3] Not applied to cost of cranes

[4] Applied to subtotal of all costs except crane, including ED/CM, Regional Adjustment and Mobilization/PB

B

Standard Unit Cost Locator

Description	Components	Unit	UnitCost	Page	RSMeans Heavy Constuction 2006 Category	Category #	Sub #	Application
15' Concrete	NA	Square Yard	$54 00	102	Rigid Pavement	2750	300-0500	Crane Pads
13" Asphalt		Square Yard						IM Driveways
	4 binder course		$9 95	101	Flexible Pavement	2740	310-0200	
	Tack Coat		$1.05	108	Flexible Pavement Coatings	2785	600-3270	
	4 "binder course		$9 95	101	Flexible Pavement	2740	310-0200	
	Tack Coat		$1 05		Flexible Pavement Coatings	2785	600-3270	
	3" binder course		$7 60	101	Flexible Pavement	2740	310-0150	
	Tack Coat		$1 05	108	Flexible Pavement Coatings	2785	600-3270	
	2" wear course		$5 70	101	Flexible Pavement	2740	310-0380	
		Total per sq Yd	$36 35					
10 " Asphalt		Square Yard						IM Parking, Auto Haulaway
	4 binder course		$9 95	101	Flexible Pavement	2740	310-0200	
	Tack Coat		$1 05	108	Flexible Pavement Coatings	2785	600-3270	
	4 "binder course		$9 95	101	Flexible Pavement	2740	310-0200	
	Tack Coat		$1 05	108	Flexible Pavement Coatings	2785	600-3270	
	2" wear course		$5 70	101	Flexible Pavement	2740	310-0380	
		Total per sq Yd	$27 70					
7" Asphalt		Square Yard						Auto Track Paving, Auto Driveways
	4 "binder course		$9 95	101	Flexible Pavement	2740	310-0200	
	Tack Coat		$1 05	108	Flexible Pavement Coatings	2785	600-3270	
	3" wear course		$8.20	101	Flexible Pavement	2740	310-0460	
		Total per sq Yd	$19 20					
4" Asphalt		Square Yard						Auto Parking
	2"binder course		$5.25	101	Flexible Pavement	2740	310-0120	
	Tack Coat		$1 05	108	Flexible Pavement Coatings	2785	600-3270	
	2" wear course		$5 70	101	Flexible Pavement	2740	310-0380	
		Total per sq Yd	$12 00					
12" Aggregate		Square Yard	13 05	100	Bases, Ballasts, Pavements & Appurtenances	2720	200-0300	Auto Haulaway, Component of IM grading
6" Aggregate		Square Yard	$6 90	100	Bases, Ballasts, Pavements & Appurtenances	2720	200-0100	Auto Track, Driveway and Parking base material
12" Cement Treated Subbase		Square Yard	$13 95	61	Soil Stabilization	2340	1360	Component of IM Grading
Intermodal Grading		Square Yard						
	12" Aggregate		13 05	100	Bases, Ballasts, Pavements & Appurtenances	2720	200-0300	
	12" Cement Treated Subbase		$13 95	61	Soil Stabilization	2340	1360	Component of IM Grading
	12" Cement Treated Subbase		$13 95	61	Soil Stabilization	2340	1360	Component of IM Grading
			40 95					
	Chain Link Fence	Lin Foot	$40 50	109	Fences/Gate	2820	130-0920	IM and Auto perimeter security

C

Intermodal Facility Asset Replacement Cost Estimate

Summary by Facility

Facility	Strip Track TF [1]		2006 Replacement $
Albuquerque	2,100	$	9,718,278
Alliance	24,000	$	111,659,468
Amarillo	2,600	$	11,784,892
Argentine	9,600	$	51,382,911
Billings	1,800	$	9,699,202
Birmingham	8,600	$	40,793,475
Cicero	32,320	$	189,935,173
Corwith	44,655	$	262,313,822
Denver	9,107	$	46,308,388
Dilworth	1,700	$	10,068,437
El Paso	2,800	$	12,611,538
Fresno	5,229	$	30,048,185
Harvard	6,600	$	31,150,231
Hobart	59,600	$	337,122,384
Houston	10,750	$	51,903,274
LPC	48,000	$	282,328,713
Memphis	14,000	$	67,424,639
NBAY	4,500	$	27,906,495
New Orleans	2,400	$	11,365,211
OIG	13,153	$	80,591,669
Omaha	4,200	$	22,819,445
Phoenix	4,272	$	20,820,743
Portland	11,320	$	62,136,828
Richmond	13,628	$	85,492,690
San Bernardino	22,766	$	128,682,920
SIG	19,875	$	108,736,227
Spokane	1,750	$	9,755,372
SSE	10,810	$	59,037,861
St Louis	4,000	$	22,001,278
St Paul	9,225	$	54,271,401
Stockton	21,600	$	123,592,945
Willow Springs	25,840	$	152,070,037
Total Facility Replacement Cost		**$**	**2,525,534,132**

[1] Ratio of track feet to replacement cost is not linear due to regional cost indexing

D

Auto Cross section

Track	Driveway area	Parking Area	Haulaway area
		4 ' Asphalt	10 " Asphalt

[redacted]

1 Area under track not considered in the grading calculation as it is already included in a different schedule

[redacted] 2 Unloading track that was not considered in the calculation as it is already included in a different schedule

[redacted] 3 Pavement
3a Track Pavement 7" thick
Calculation for 90' of track is width of track 8 5' x 90' / 9 sq ft per sq yard = 85 sq yds per 90 feet = 95 sq yds per 1 foot track

3b Driveway area 24' wide to accommodate 2-12 foot drive lanes Pavement 7" thick
Calculation for Driveway paving for 90' of track is Width of roadway 24' x length of track 90'/ 9 sq ft per sq yd = 240 sq yds =2 66 sq yds per track foot

3c Parking Pavement, 4" thick
Parking demand calculated based on following assumptions Each 90' track space accommodates one rail car Each railcar holds 12 automobiles Assume 2 unloading cycles for each car spot daily which equals 24 vehicles unloaded per car spot per day
Total number of vehicles unloaded on one car spot per year = 24 x 363 days unloading per year = 8712 vehicles
Typical dwell in auto facility is 4 days with a peaking factor of 1 25 for weekends and holidays
Parking spots required per 90 feet of unload track = (8712 vehicles x (96 hours well x 1 25 peaking factor)/8760 =119 spaces
1 acre will support 130 parking spots 119 vehicles consumes 92 acre (119/130) Each acre = 4840 sq yds 119 vehicle spaces consumes 4453 sq ft (92 x 4840) for each 90 foot of track or 50 sq yds per 1 foot of track

3d Haulaway Pavement 10" Thick Haulaway is the location where trucks are parked for loading with automobiles for distribution to the local Dealers
Haulaway area assumptions Each day a 90 foot unload track will generate 24 vehicles Each day 24 vehicles must be hauled off the facility at the end of the 5 day dwell Each haulaway truck holds 8 vehicles and requires a parking spot 100 feet long considering the space required behind the truck for vehicle loading lane and 11 feet wide Area calculation for each space is 100' x 11' wide = 1100 sq ft / 9 sq ft per sq yd =122 sq yds
Each haulaway spot will turnover 2 times a day The calculation for area required for 90 of tracks is 24 vehicles/8 vehicles per truck = 3 tuck loads
3 truck loads/ two turns a day per space = 1 5 spaces a day for 90 feet of track or 1 5 x 122 sq yds = 183 sq yds Each 1 foot of track requires 183 sq yd / 90 = 21 sq yds

[redacted] 6" aggregate base material used under driveway and parking areas Calculation is sq yds driveways = sq yds parking = sq yds base material

[redacted] 12" aggregate base material used under haulaway parking area Calculation is sq yds haulaway = sq yds base material

Recent construction and technology bid for facility In/Out gate was $8,000,000 Facility has 48,000 feet of track per track foot of cost of gate = $170

Recent construction and technology bid for facility site electrical not related to buildings was $8 000,000 Facility has 48,000 feet of track, per track foot of cost of electrical = $170

Buck Ramps are specialized pieces of equipment used for unloading autos from rail cars 1 Buck ramp is required for evey 2 000 feet of track however each facility requires at least 2 Buck ramps to assure unloading can occur if one breaks down We also rounded up to assume a whole number of Buck ramps Cost for ramps are from public information from vendor

Automotive Facility Asset Replacement Assumptions[1] Cost per 90 TF of Loading / Unloading Track[2]				Cost per 1 TF of Strip Track		
Input						
Loading / Unloading Track TF	90			1		
Loading / Unloading Track Miles	0 02			0 0002		
Output						
8' Security Fence Required (Feet)	723			8 03		
Cost per Foot of 8' Security Fence	$40 50			$40 50		
8' Security Fence Cost		$	29,282		$	325
Asphalt Track Pavement Required (SQ YD)	85			0 94		
Cost per SQ YD Asphalt Pavement	$19 20			$19 20		
Asphalt Track Pavement Cost		$	1,632		$	18
Asphalt Driveway (SQ YD)	240			2 67		
Cost per SQ YD Asphalt Pavement	$19 20			$19 20		
Asphalt Pavement Cost for Driveway		$	4,608		$	51
Parking Required (SQ YD)	4,453			49 48		
Cost per SQ YD Parking	$12 00			$12 00		
Parking Cost		$	53,436		$	594
Haulaway Truck Parking Required (SQ YD)	122			1 36		
Cost per SQ YD Haul Away Truck Parking	$27 70			$27 70		
Haul Away Truck Parking Cost		$	3,379		$	38
Aggregate Base Required (SQ YD) Driveway & Parking	4,693			52 14		
Cost per SQ YD 6" Aggregate Base	$6 90			$6 90		
Driveway & Parking Aggregate Base Cost		$	32,382		$	360
Aggregate Base Required (SQ YD) Haul Away Parking	122			1 36		
Cost per SQ YD 12" Aggregate Base	$13 05			$13 05		
Haul Away Parking Aggregate Base Cost		$	1,592		$	18
Gate Required ($170 Load / Unload Track TF)	$170 00			$170 00		
Gate Cost		$	15,300		$	170
Electrical Required ($170 Load / Unload Track TF)	$170 00			$170 00		
Electrical Cost		$	15,300		$	170
Buck Ramps Required[3]	0 05			0 001		
Cost per Buck Ramp	$75,000			$75,000		
Buck Ramp Cost		$	3,375		$	38
Subtotal Cost per TF of Loading / Unloading Track		$	160,286		$	1,781
Engineering Design / Construction Mgmt[4]	10%	$	15,691		$	174
Regional Cost Adjustment[4]	0%	$	-		$	-
Mobilization / Performance Bond	3 5%	$	5,610		$	62
Contingencies[5]	10%	$	17,821		$	198
Total Automotive Facility Replacement Cost		$	199,408		$	2,216

[1] Excludes costs associated with Rail, ties, ballast, buildings, signal, telecom and security that are contained in separate schedules Also excludes grading cost associated with the rail ties and ballast

[2] 90 feet is the base unit of unloading / loading track length for the hypothetical facility model because that is the length of an autorack rail car Replacement cost values for actual facilities are calculated as a function of actual unloading / loading track length

[3] A Buck ramp is required for every 2,000 ft of unloading / loading track, with a minimum of 2 buck ramps per facility

[4] Not applied to cost of Buck ramps

[5] Applied to subtotal of all costs except buck ramps, including ED/CM Regional Adjustment and Mobilization/PB

E

Automotive Facility Asset Replacement Cost Estimate

Summary by Facility

Facility	Loading / Unloading Track TF[1]	2006 Replacement $
Alburquerque, NM	2,500	$4,824,631
Alliance, TX	4,600	$8,751,322
Amarillo, TX	4,600	$8,751,322
Birmingham, AL	3,600	$7,067,879
Crosby, CA	2,700	$6,296,349
Denver, CO	2,800	$5,949,419
Dilworth, MN	1,600	$3,994,800
El Mirage, AZ	6,000	$12,076,988
Kansas City, KS	3,500	$7,929,545
Laurel, MT	2,500	$5,591,750
Logistics Park, IL	9,500	$23,422,131
Memphis, TN	3,600	$7,067,879
National City, CA	500	$1,288,213
Omaha, NE	1,800	$4,150,909
Orillia, WA	3,600	$8,255,379
Pearland, TX	4,800	$9,539,536
Richmond, CA	4,700	$12,354,479
Rivergate, OR	3,500	$7,949,682
San Bernardino, CA	9,000	$21,277,074
Spokane, WA	900	$2,176,345
St Paul, MN	3,000	$7,359,001
Valley Park, MO	7,800	$17,786,861
Total Facility Replacement Cost		**$193,861,495**

[1] Ratio of track feet to replacement cost is not linear due to regional cost indexing